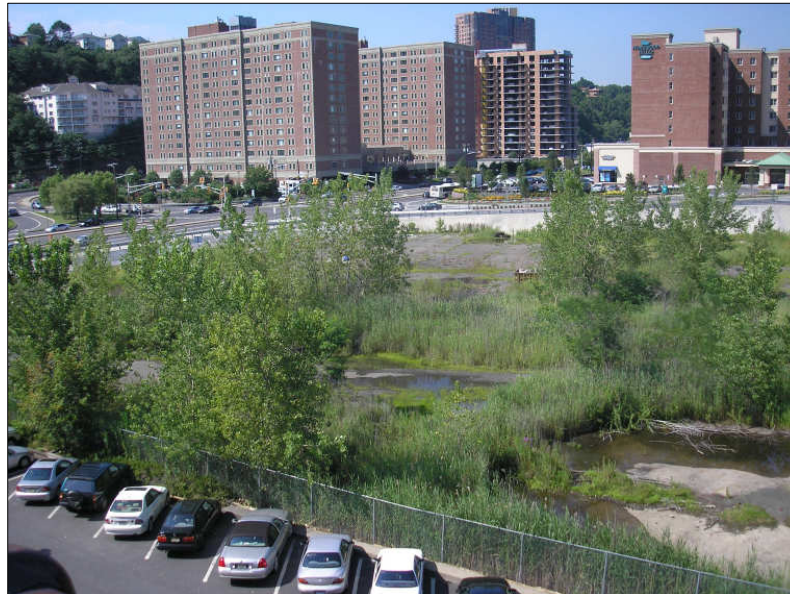




Public Information Session



Quanta Resources Superfund Site OU1 Remedial Investigation Results

August 5, 2008



Agenda

- Summary of Remedial Investigation Results for OU1
 - Soil
 - Constituents of Interest
 - Former Acid Plant Area-Arsenic
 - Groundwater
 - Constituents of Interest
 - Arsenic
 - Polycyclic Aromatic Hydrocarbons (PAHs)
 - Key RI Conclusions (Soil and Groundwater)
 - Risk Assessment Summary for Groundwater and Soils
 - Questions



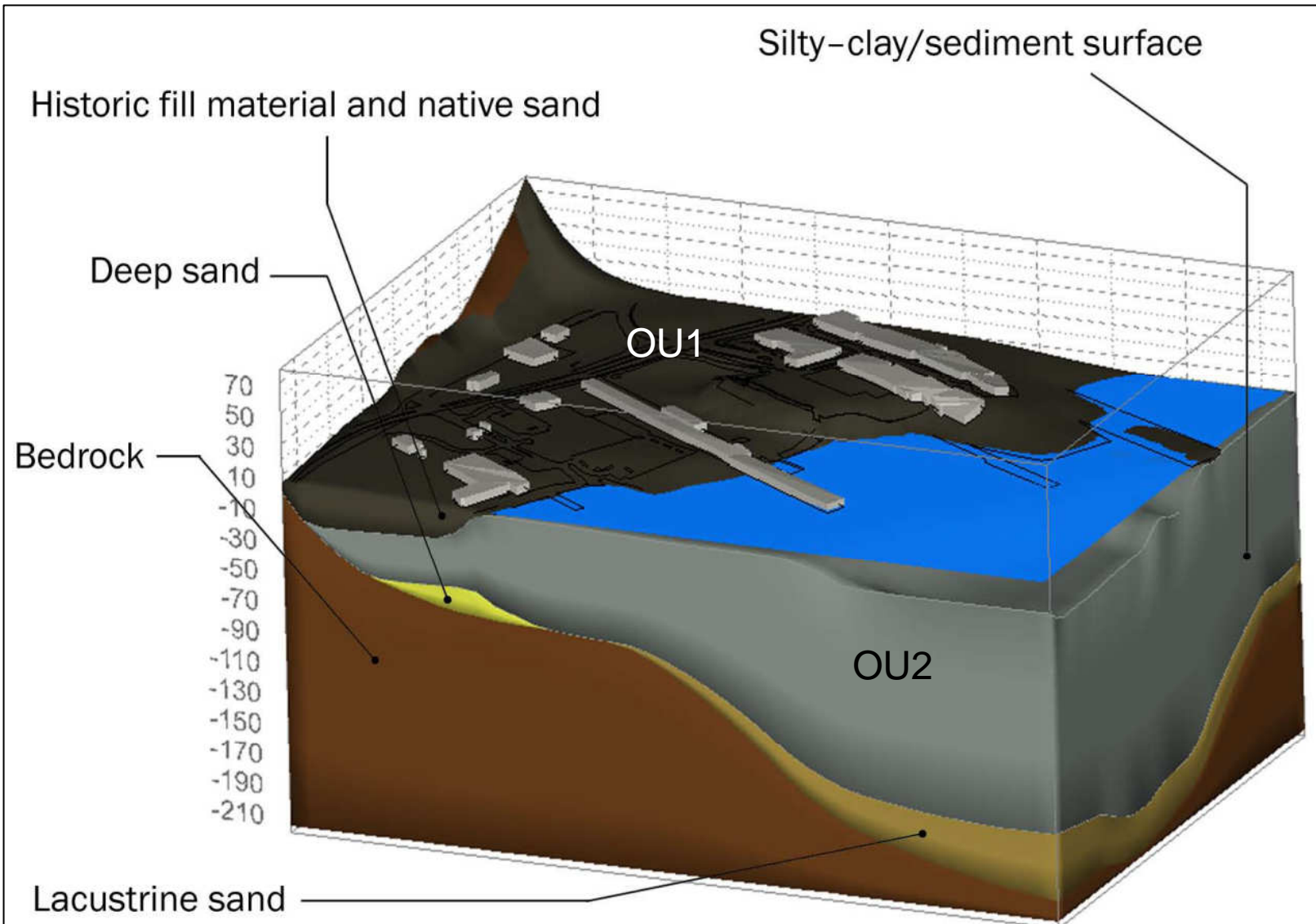


Soil - Constituents of Interest

- Organic and inorganic constituents present in soil above screening criteria
 - Semi volatile organic compounds
 - Volatile organic compounds
 - Metals (e.g., arsenic and lead)
 - PCBs and Pesticides
 - Pesticides (used against weeds, insects and plants)
- Impacted soils are primarily above the silty-clay confining unit (25-30 feet below ground surface) which acts as a barrier
- In addition to site-related impacts, soil contaminants may also be present due to non-Site-related operations (e.g., historic fill)



Site Geology






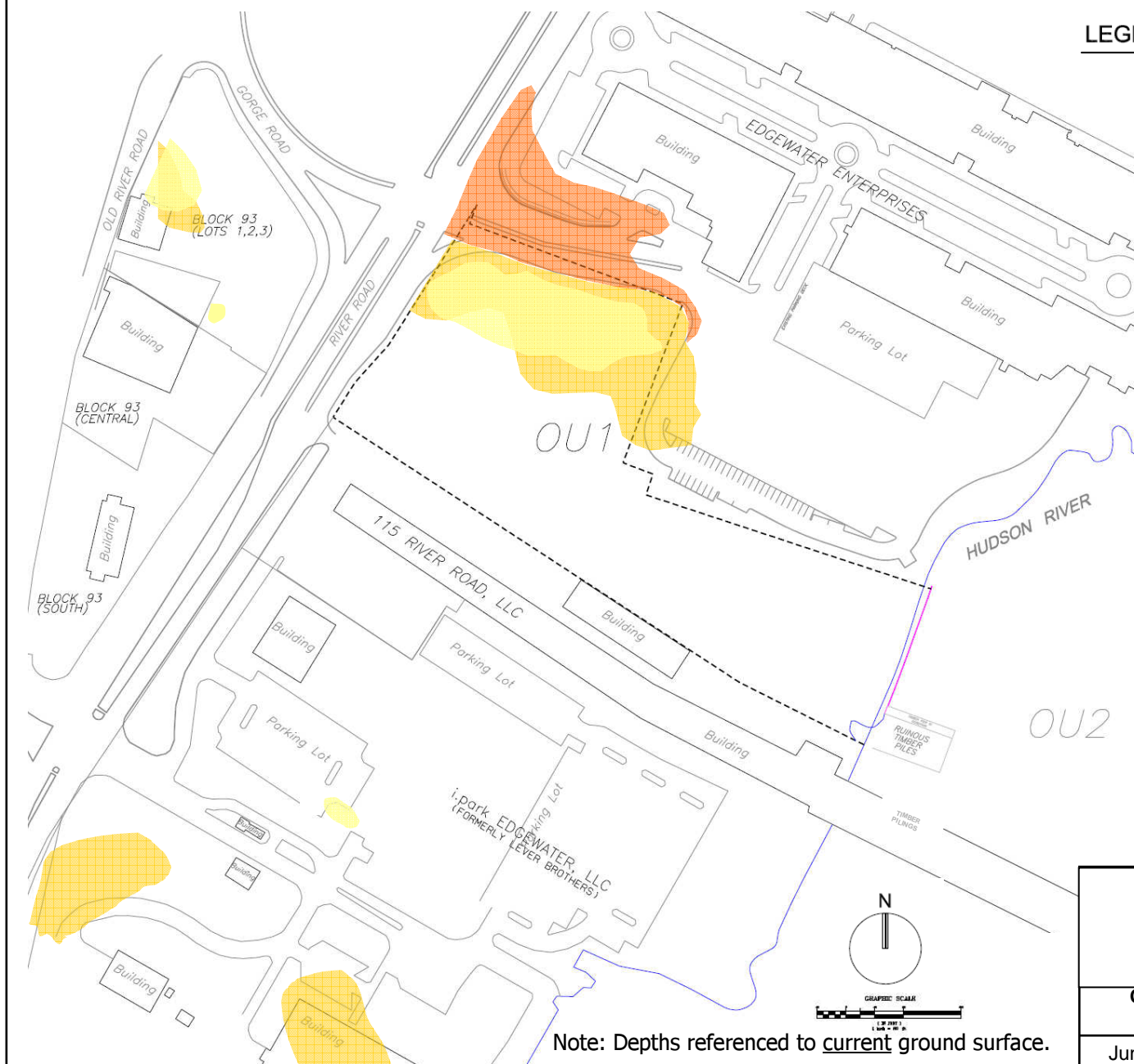


Arsenic in Soil

- High Concentrations of Arsenic were found in the soils:
 - Northwest portion of site
 - High Concentration Arsenic Area (HCAA)
 - Footprint of the former Arsenic Plant
 - Extends under access ramp from River Road to City Place
 - Block 93 north
 - Former Unilever property

LEGEND

- Quanta property boundary
-  Arsenic >336 ppm and <4 ft bgs
-  Arsenic >336 ppm and 4-10 ft bgs
-  Arsenic >1000 ppm and 10 ft bgs (liner area)



Note: Depths referenced to current ground surface.

Source Areas - Arsenic

Quanta Resources Superfund Site
Edgewater, New Jersey

June 10, 2008



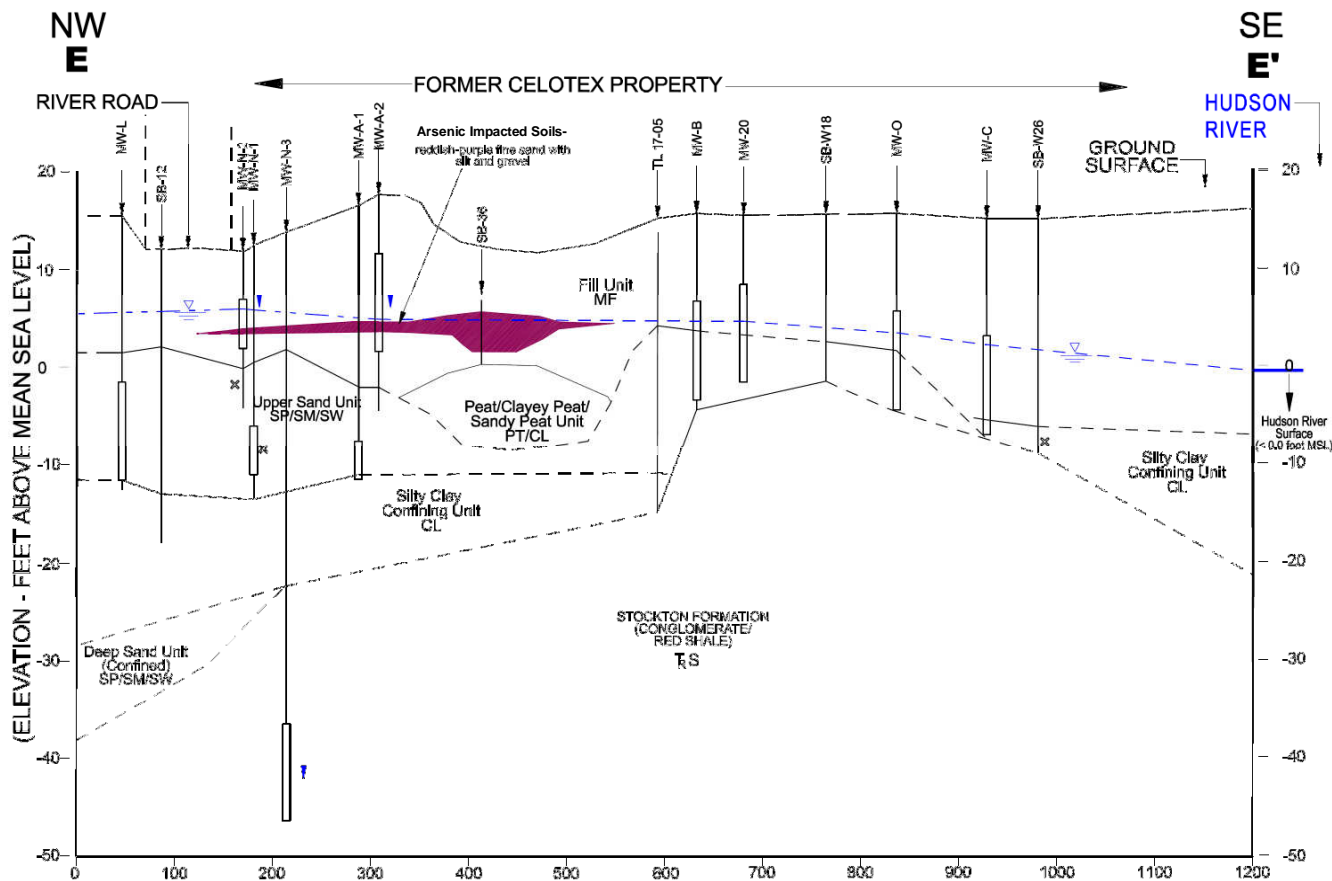
Groundwater

- Organic and inorganic constituents are present in groundwater above screening criteria
 - Metals (e.g., arsenic and lead)
 - Semi volatile organic compounds
 - Volatile organic compounds
- Impacted groundwater is primarily above the silty-clay confining unit (aquitard)
 - Aquitard approximately 25-30 feet below ground surface
- Groundwater also impacted from non-Site-related operations (e.g., historic fill, upgradient source of chlorinated solvents)



Arsenic in Groundwater

- Five discrete areas of elevated arsenic groundwater concentrations
 - Former acid plant area
 - Vicinity of groundwater monitoring well MW-107
 - Former Lever Brothers property
 - Located within the NZ-1 and NZ-3 NAPL zones
 - Vicinity of Monitoring well MW-C
 - Located within the NZ-5 zone
 - Pitch/Asphalt Material area
 - Former Lever Brothers property
 - Not part of Quanta site—being addressed by others
 - Located in NAPL zone
 - Vicinity of groundwater monitoring wells, MW-111 series (Block 93 North property)



LEGEND

- Water table (unconfined)
- Stratigraphic contact
- Stratigraphic contact (inferred)
- Direction of vertical hydraulic gradient
- Denotes wells or soil borings that exhibit the presence of NAPL, either observed in subsurface soil or as measureable thickness in

Notes:

TS = Stockton formation, grey feldspathic arkose, conglomerate, and red shale

SM = silty sands, sand-silt mixture

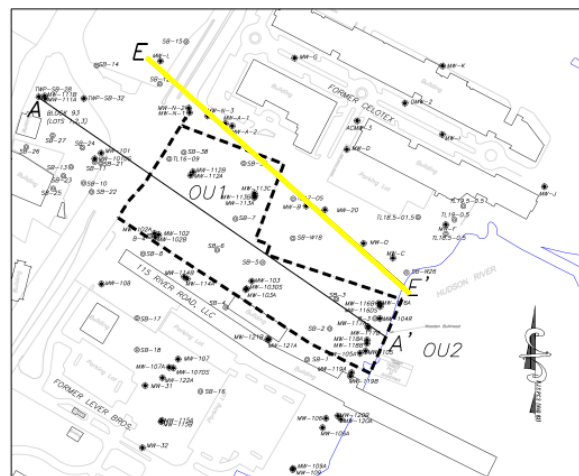
SP = poorly graded sands, gravelly sands, little/no fines

SW = well-graded sands, gravelly sands, little/no fines

CL = inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays, silty clays

ML/OL/CL/PT = organic silty & clays of low plasticity/peat, humus, swamp soils with high organic content, some isolated thin beds of clean sand

MF = mixed fill (gravel, sand, cinder/slag, brick, wood)



Source Areas - Arsenic

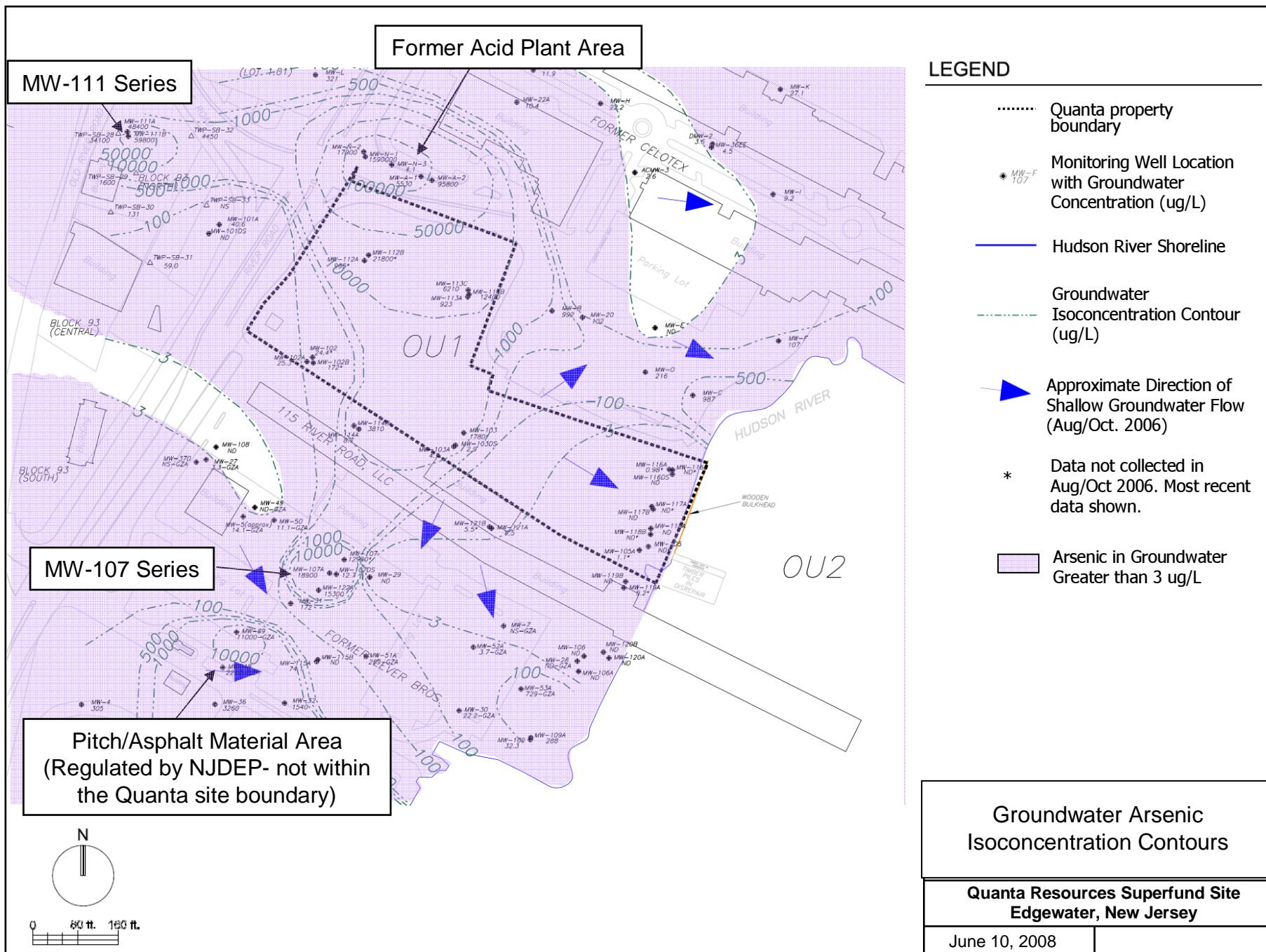
Quanta Resources Superfund Site
Edgewater, New Jersey

June 10, 2008



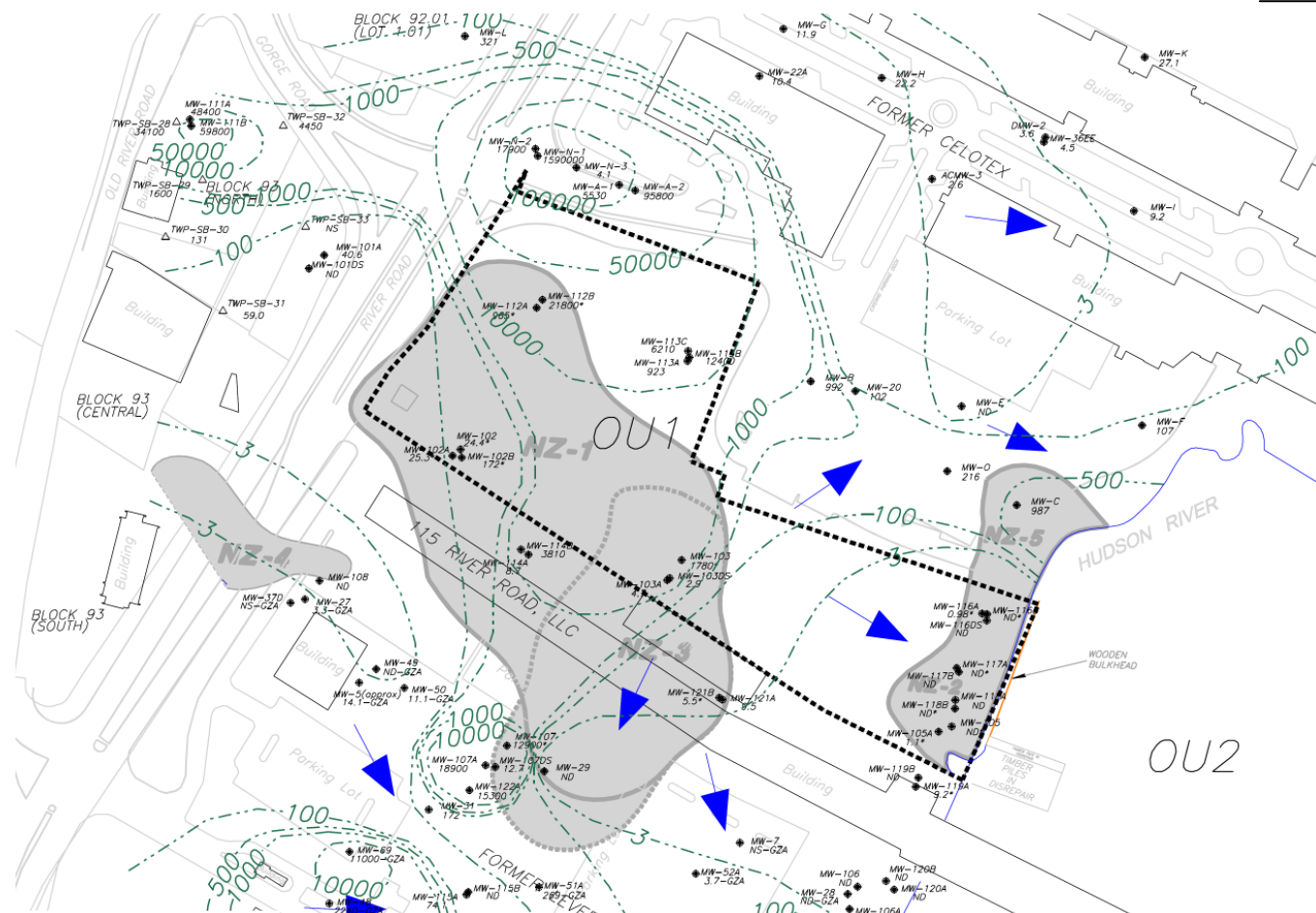
Arsenic Geochemistry

- Complex geochemistry
 - Presence of NAPL increases arsenic in groundwater
 - Presence of iron oxyhydroxides decreases arsenic in groundwater
 - eH/pH conditions change arsenic solubility
 - Presence of oxygen changes arsenic solubility
 - These processes are reversible
- Behavior of arsenic prior to reaching the Hudson River presently being evaluated as part of the final phase of supplemental investigation



LEGEND

- Quanta property boundary
- MW-F 107
Monitoring Well Location with Groundwater Concentration (ug/L)
- Hudson River Shoreline
- Groundwater Isoconcentration Contour (ug/L)
- Approximate Direction of Shallow Groundwater Flow (Oct. 2006)
- * Data not collected in Aug/Oct 2006. Most recent data shown.
- NAPL Zones



Groundwater Arsenic
Isoconcentration Contours And
NAPL Zones

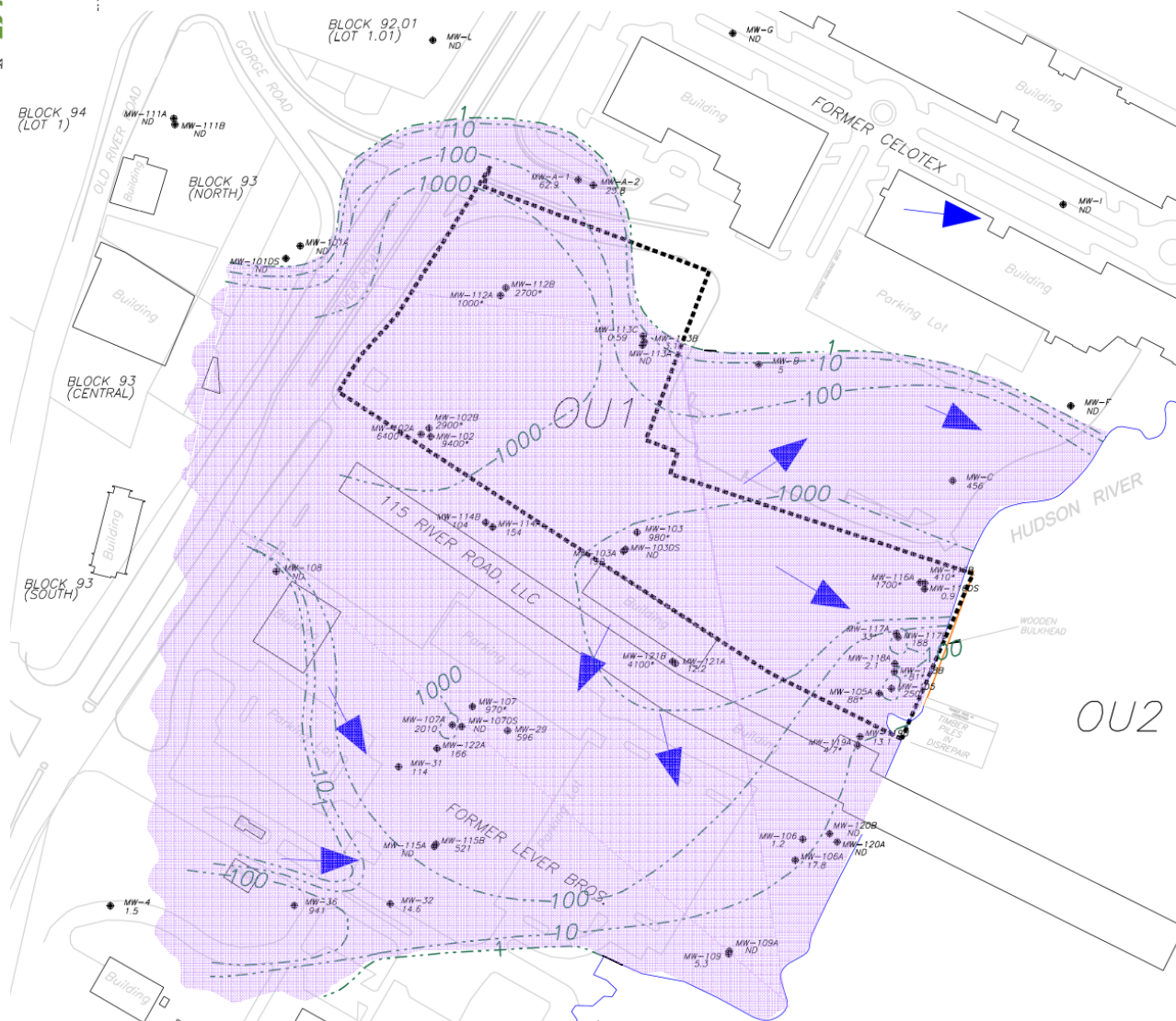
Quanta Resources Superfund Site
Edgewater, New Jersey

July 31, 2008



Organic Compounds in Groundwater

- Extent of dissolved phase organics is well understood. Distribution is similar to that of NAPL.
 - Benzene
 - naphthalene
 - benzo(a)pyrene
- Behavior of dissolved phase organics prior to reaching the Hudson River presently being evaluated as part of the final phase of supplemental investigation



- Monitoring Well Location with Groundwater Concentration (ug/L)
- Hudson River Shoreline
- Groundwater Isoconcentration Contour (ug/L)
- Approximate Direction of Shallow Groundwater Flow (Oct. 2006)
- * Data not collected in Aug/Oct 2006. Most recent data shown.
- Benzene in Groundwater Greater than 1 ug/L

Benzene Isoconcentration Contours in Groundwater



LEGEND

..... Quanta property boundary

● MW-F 107
Monitoring Well Location with Groundwater Concentration (ug/L)

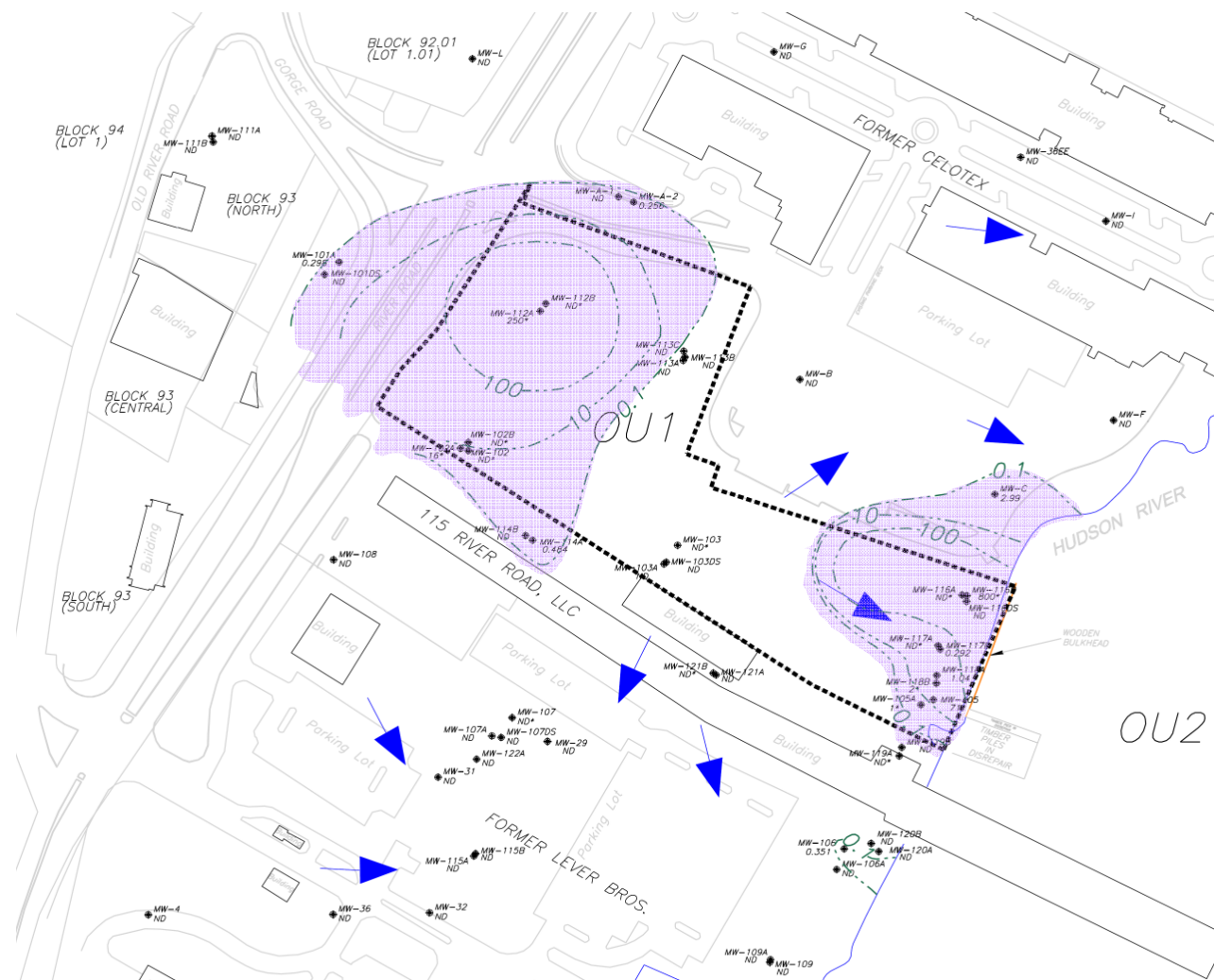
— Hudson River Shoreline

--- Groundwater Isoconcentration Contour (ug/L)

▶ Approximate Direction of Shallow Groundwater Flow (Aug/Oct. 2006)

* Data not collected in Aug/Oct 2006. Most recent data shown.

■ Benzo (a) pyrene in Groundwater Greater than 0.1 ug/L



Benzo (a) pyrene Isoconcentration Contours

Quanta Resources Superfund Site
Edgewater, New Jersey

June 10, 2008



Key Groundwater Conclusions

- Predominant constituents of interest include arsenic and coal tar/NAPL-related constituents in groundwater (e.g., PAHs, volatile organic compounds)
- Contaminant groundwater plumes are probably at steady state (not expanding in area).
 - Possible exception is arsenic where plume is affected by geochemical changes
 - Arsenic levels in MW-C are increasing
 - Stability of arsenic and trends in groundwater concentrations for all constituents being evaluated further
- Elevated arsenic in groundwater often co-located with high concentrations in the soil.
- Presence of NAPL can result in increases of arsenic in groundwater.
 - In other words, the NAPL is creating geochemical conditions which dissolve the arsenic out of the soil.
- Mobility of NAPL and arsenic in NE corner of site being evaluated
 - Filling Operations on Former Celotex may have caused non-steady state conditions
- Final phase of supplemental investigation key to addressing extent to the west, and fate of all groundwater impacts in vicinity of river.



Ecological Risk Assessment

- Screening-Level Ecological Risk Assessment
 - Evaluated potential risk to terrestrial receptors
 - Invertebrates, plants, birds, and mammals that live or grow on land
 - There are few receptors that inhabit OU1
 - Deer (May be temporary)
 - Raccoons
 - Feral cats
 - Additional characterization of ecological risk at OU1 is not necessary



Human Health Risk Assessment - Scope

- HHRA answers two basic questions:
 - What are the current risks to people who might be exposed to contamination?
 - What are the potential future risks based on likely development if no cleanup actions are taken?
- Five properties evaluated
 - Quanta
 - 115 River Road
 - Former Lever Brothers
 - Former Celotex
 - Block 93 North
- Three media evaluated
 - Surface soil (0-2 ft bgs)
 - Subsurface soil (0-10 ft bgs)
 - Groundwater (above and below the silty-clay layer)
- Block 93 Central and South to be evaluated later in 2008/2009 once supplemental work completed



Risks under Current Scenario

- Groundwater not used as a source of drinking water
 - Drinking water is provided by a public water supply which is tested regularly and meets all Federal and State regulations
- Current exposures associated with existing land uses do not indicate an immediate health threat
 - Most soils are covered with pavement, buildings, or roads
 - Contact with exposed soils at Quanta Resources Property are restricted by fencing.
 - Exposure to soils at Former Unilever Property and Block 93 North are likely to be limited, infrequent, and not associated with immediate health threats



Human Health Risk Assessment Conclusions

- Primary Contributors to Potential Risk in Soils and Groundwater
 - PAHs (e.g., Benzo(a)pyrene)
 - Naphthalene
 - Arsenic
- Current exposures associated with existing land and groundwater uses do not indicate an immediate health threat
- Risk assessment criteria were exceeded for one or more receptors at each property
- Alternatives for addressing contamination and long term risk will be evaluated in the Feasibility Study



Tentative OU1 Schedule

Task	Date
Submit Revised Work Plan for Supplemental Field Work	July 2008
Implement Work Plan for Supplemental Field Work (portions underway)	July-Oct 2008
Submit Draft Feasibility Study Report	Fall 2008
Submit Draft Supplemental Remedial Investigation Report	Winter 2008
Submit Final Remedial Investigation Report	Spring 2009
Revision of Draft Feasibility Study Report	Winter 2008
Submit Final Feasibility Study Report	Spring 2009
EPA's Proposed Plan for OU1	Spring 2009



Questions and Answers

Questions ?